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AL055:
Practical Chromatography Skills

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Training Description:

This **Practical Chromatography Skills** training is essential for individuals working in fields like chemistry, biochemistry, and pharmaceutical sciences. This training equips professionals with the hands-on knowledge and techniques necessary to effectively utilize chromatography, a crucial analytical method for separating and analyzing mixtures. By mastering practical chromatography skills, individuals can:

- **Improve accuracy and precision:** Proper technique ensures reliable and consistent results, leading to more accurate data analysis.
- **Optimize experimental conditions:** Understanding the factors influencing chromatographic separation allows for tailored experimental setups, maximizing efficiency and sensitivity.
- **Troubleshoot issues effectively:** Practical experience helps identify and resolve common problems that may arise during chromatographic procedures, saving time and resources.
- **Advance research and development:** Proficiency in chromatography enables researchers to investigate new compounds, develop novel analytical methods, and contribute to scientific progress.
- **Enhance career opportunities:** Chromatography skills are highly sought after in various industries, opening doors to diverse career paths and professional advancement.

Training Objectives:

By the end of the training, participants will be able to:

- ✓ Understand the fundamental principles of chromatography and its various techniques
- ✓ Select appropriate chromatographic methods for different analytical needs
- ✓ Prepare mobile phases and stationary phases effectively
- ✓ Operate chromatographic instruments with proficiency and accuracy
- ✓ Analyze and interpret chromatographic data to obtain meaningful results
- ✓ Troubleshoot common issues encountered in chromatographic analysis
- ✓ Adhere to quality control standards and regulatory requirements in chromatography

Training Designed for:

This course is intended for Laboratory technicians, Analytical chemists, Quality control personnel, & Research scientists.

Training Requirement:

"Hand's on practical sessions, equipment and software will be applied during the course if required and as per the client's request."

Contents can be adapted to your specific wishes. It is therefore possible to focus on specific modules of the training course as per client's learning needs and objectives. Further, it should be forwarded to us a month prior to the course dates.

Training Program:

FIVE DAYS:

- ❖ **Introduction to Chromatography**
  - Fundamentals of chromatography

- Separation principles
- Types of chromatography (e.g., HPLC, GC, TLC)

- Chromatographic systems
  - Components and their functions
  - Instrument setup and operation
- Mobile and stationary phases
  - Properties and selection criteria

❖ Liquid Chromatography (HPLC)

- HPLC techniques
  - Reversed-phase, normal-phase, ion-exchange, size-exclusion
- Sample preparation
  - Extraction, filtration, derivatization
- Method development
  - Optimization of mobile phase and stationary phase
- Qualitative and quantitative analysis
  - Peak identification, calibration curves

❖ Gas Chromatography (GC)

- GC techniques
  - Packed column, capillary column
- Sample introduction
  - Injection techniques (e.g., split, splitless)
- Column selection
  - Factors affecting column choice
- Qualitative and quantitative analysis
  - Peak identification, calibration curves

❖ Thin-Layer Chromatography (TLC)

- TLC principles and applications
  - Qualitative analysis, purification
- Plate preparation and development
  - Choice of adsorbent, solvent system
- Visualization of spots
  - Staining techniques
- Quantitative analysis
  - Densitometry

❖ Advanced Topics and Troubleshooting

- Chromatographic data analysis
  - Integration, peak purity assessment
- Method validation
  - Accuracy, precision, linearity, range
- Troubleshooting
  - Common problems and solutions

- Regulatory compliance
  - Good laboratory practices (GLP)
  - Quality assurance (QA)
- Case studies
  - Real-world examples of chromatographic applications

❖ Course Conclusion
❖ POST-ASSESSMENT and EVALUATION

Training Methodology:

This interactive training course includes the following training methodologies as a percentage of the total tuition hours:

- 30% Lectures, Concepts, Role Play
- 70% Workshops & Work Presentations, Techniques, Based on Case Studies & Practical Exercises, Gamification, Software & General Discussions
- Pre and Post Test

Training Certificate(s):

CMCT Internationally recognized certificate(s) will be issued to each participant who completed the course.

Training Fees:

TBA as per the course location - This rate includes participant's manual, hand-outs, buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Note: The 5% VAT (Value Added Tax), will be effective starting 01st of January 2018 as per the new regulation from the UAE Government. The VAT applies for all quotation both for local and abroad.

Training Timings:

Daily Timings:

07:45 - 08:00	Morning Coffee / Tea
08:00 - 10:00	First Session
10:00 - 10:20	Recess (Coffee/Tea/Snacks)
10:20 - 12:20	Second Session
12:20 - 13:00	Recess (Prayer Break & Lunch)
13:00 - 14:00	Last Session

For training registrations or in-house enquiries, please contact:
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